What is claimed is:

1. A single-axial precision measuring apparatus comprising a base, a flatbed at the base, a monitor above the flatbed, and a distance measuring mechanism below the flatbed; and the characteristics being that:

the distance measuring mechanism below the flatbed captures images in an upward direction, and calculates relative center positions of two to-be-measured images captured by charge coupled devices (CCD) using measurements read by an optical ruler disposed in parallel with a single-axial sliding track, thereby obtaining a length between two measuring points;

the flatbed is a transparent plate having a plurality of ventilation openings that are connected with a suction tube of a vacuum suction device; and

the distance measuring mechanism disposed below the flatbed is capable of transverse movements, and at least has an optical ruler, a laser positioning element and CCD cameras; wherein the CCD cameras focus at the measuring points, and transmit the images to the monitor.

2. The single-axial precision measuring apparatus in accordance with

claim 1, wherein the base has a flattening mechanism above the flatbed, with the flattening mechanism being capable of up-and-down displacements and having multi-sectional halt heights via program controls.

3. The single-axial precision measuring apparatus in accordance with claim 1, wherein two CCD cameras provided have different magnifications, and focus at a same measuring point.

4. The single-axial precision measuring apparatus in accordance with claim 1, further comprising at least one temperature sensor at an appropriate position at the base and near the flatbed, wherein the temperature sensor acquires ambient temperatures of the flatbed, and in coordination of embedded algorithms of temperature compensation programs in a computer, errors occurred by temperature changes during measuring process are automatically adjusted and compensated at all time.

5. The single-axial precision measuring apparatus in accordance with claim 2, further comprising at least one temperature sensor at an appropriate position at the base and near the flatbed, wherein the temperature sensor acquires ambient temperatures of the flatbed, and in coordination of embedded algorithms of temperature

compensation programs in a computer, errors occurred by temperature changes during measuring process are automatically adjusted and compensated at all time.

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